

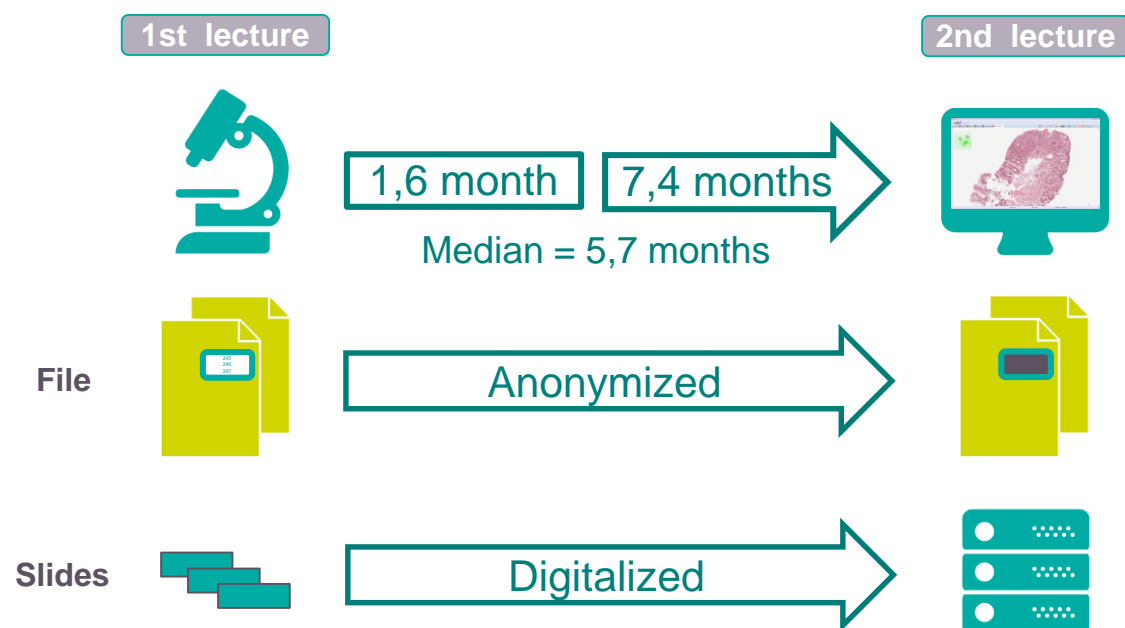
DAILY BIOPSY ANALYSIS: CONCORDANT TUMORAL DIAGNOSIS BETWEEN GLASS AND DIGITAL SLIDE.

Irène VILLA (1), Marie-Christine MATHIEU (1), Jacques BOSQ (1), Anne AUPERIN (2), Jean-François POMEROL (3), Magali LACROIX-TRIKI (1), Jean-Yves SCOAZEC (1) et Peggy DARTIGUES (1)
 (1) Gustave Roussy, Département de Biologie et Pathologie Médicales, F-94805, VILLEJUIF France
 (2) Gustave Roussy, Service de Biostatistique et d'Epidémiologie, F-94805, Villejuif France
 (3) TRIBVN Healthcare, 92320, Chatillon, France

Introduction

The use of high-resolution digital images of histopathology slides as a daily diagnostic tool for surgical pathology in our department has been investigated. The study purpose was to determine the diagnostic concordance between pathologist's interpretations using whole-slide imaging and standard light microscopy.

Materials & methods



- 3 pathologists A, B, C
- 40 biopsies per pathologist
- Subspecialties:
 - A – Hematology
 - B – Gastrointestinal
 - C – Breast

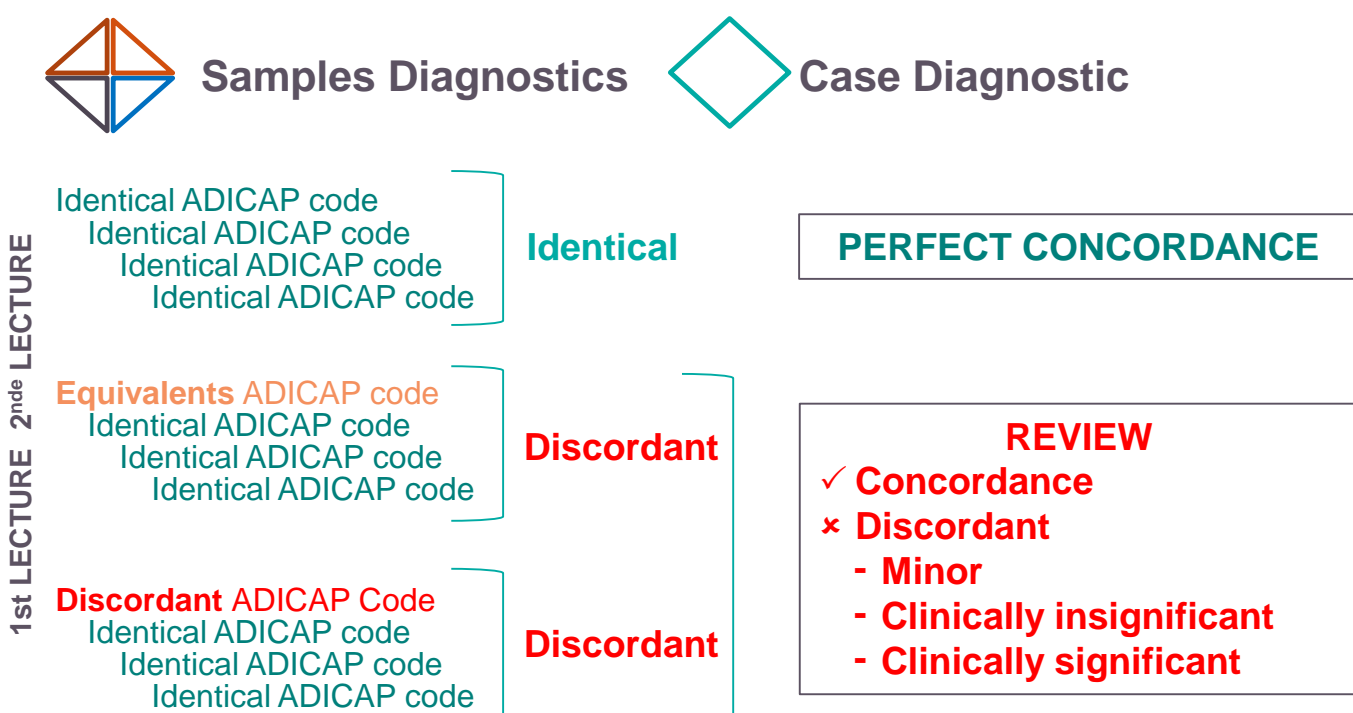
Diagnoses were coded, like routinely, using ADICAP classification.

Whole-section were scanned on NanoZoomer HT (Hamamatsu, Japan) digital scanner, using x40 objective and viewed on diagnostic grade, color calibrated monitor (24-inch, 4 megapixel Eonis BARCO MDRC-2224) flat screen.

Digital slides (DS) were stored and viewed in CaloPix Workstations (TRIBVN Healthcare).

One case was discarded because of anonymized default. 119 cases consisting in 237 blocks, ranged from 1 to 11 with a median of 2 per case were used in the study. Overall 749 individual slides (44,3% haematoxyline and 55,7% IHC) were scanned, ranged from 1 to 39 with a median of 5 per case.

Results



1 st Lecture / 2 nd Lecture	SAMPLES	CASE
Identical ADICAP Codes	179 (75,5%)	83 (69,8%)
Dicordant ADICAP Codes	58 (24,5%)	36 (30,3%)

PERFECT CONCORDANCE

REVIEW

BEFORE REVIEW	AFTER REVIEW	SAMPLES	CASES
DISCORDANT	CONCORDANCE	28 (11,8%)	21 (17,6%)
DISCORDANT	MINOR DISCORDANCE	24 (10,1%)	12 (10,1%)
DISCORDANT	MAJOR DISCORDANCE CLINICALLY INSIGNIFICANT	6 (2,5%)	1 (0,8%)
DISCORDANT	MAJOR DISCORDANCE CLINICALLY SIGNIFICANT		2 (1,7%)

3 cases were discordant; 2 of them were clinically significant. In 2 of the 3 cases, discordances resulted from interpretive criteria or diagnostic error. The whole-slide imaging modality did not contribute to diagnostic differences. Regarding the third case, discrepancy can be explained by pathologist's inability to clearly visualize nuclear detail in dark areas in digital mode.

Adding "perfect concordance" and "concordance", concordance between GS and DS was: = 87,4%, (95% confidence interval, [80,1%; 92,1%])

Adding "concordance" and "minor discordance" between GS and DS was: = 97.5%, (95% confidence interval, [92.8%; 99.5%])

Conclusion

Herein, like others, we show a good intraobserver agreement in between glass and digital slide diagnosis. **With our WSI systems we observe 97.5% of concordance.** None of the three discrepancies was related to the WSI systems malfunctions. In our study, all discrepancies were coming from pathologist lack of practice using the system which has led to setup errors. New functionalities have since been implemented to facilitate pathologists use. This study did not detect significant differences between diagnoses based on glass and digital slides. We believe that this study further supports the integration of digital slides into pathology workflow, particularly considering the low rate of discrepancy documented here.